

REMARKS

This Amendment is filed in response to the Office Action mailed on February 9th, 2005. All objections and rejections are respectfully traversed.

Claims 1-27 are now pending.

Claims 1 and 20, 22, and 24 have been amended to better claim the invention.

Claim 21 has been cancelled without prejudice.

No new claims have been added.

Rejections under 35 U.S.C. §102(e)

At paragraphs 1-2 of the Office Action, claims 1 and 3-5 were rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent Application No. 2003/0061491, filed Sept. 21st, 2001 by Jaskiewicz et al. (hereinafter "Jaskiewicz").

The Applicant notes that Jaskiewicz was filed on Sept 21st, 2001, less than one year before the Applicant's date of filing. While the Applicant does not admit that Jaskiewicz is entitled to actual prior art status relative to the Applicant's invention, even assuming arguendo that it is, the claimed invention is patentable over Jaskiewicz.

The present invention, as set forth in representative claim 1, comprises in part:

1. A method for a network device to claim ownership of a disk in a network storage system comprising the steps of:

setting a first ownership attribute on the disk to a state of ownership by the network device; and
setting a second ownership attribute on the disk to a state of ownership by the network device.

Jaskiewicz discloses a method for automatic allocation of network storage space (disk space). *See* paragraph 0004. A storage allocator receives requests for disk space with certain “attributes,” and then matches these requests to disk space with those “attributes.” *See* paragraph 0014 and 0020. Jaskiewicz defines “attributes,” stating “[a]n attribute is a characteristic that can be used to distinguish one device from another. For example an attribute for a magnetic disk drive is the size of the storage medium. Other attributes for a magnetic disk drive include its location and data access speed.” *See* paragraph 0014 and 0022 and Fig. 4, box 60 (showing a list of attributes). The “attributes” for the disk drives are stored in memory internal to the storage allocator. *See* paragraph 0022 and Fig. 4.

In an example given in Jaskiewicz, the storage allocator may receive a request for space with “disk access speed of 5400 and available storage of 40 Gigabytes.” The storage allocator would search its memory for a disk with those attributes, and if found, allocate that disk to the requesting device. *See* paragraph 0022.

The Applicant respectfully urges that Jaskiewicz is silent concerning the Applicant’s claimed invention relating to “*setting a first ownership attribute on the disk to a state of ownership by the network device*” and “*setting a second ownership attribute on the disk to a state of ownership by the network device.*”

Applicant's claimed invention is not anticipated by Jaskiewicz for two primary reasons.

First, the Applicant's claimed *first and second ownership attributes* set to a *state of ownership by the network device* are in no way taught by Jaskiewicz's "attributes." Jaskiewicz's discloses "attributes" that are merely characteristics of disks, such as access time, access speed (rpms), disk size, RAID level, etc.. While some of these attributes may be changed by the storage system, such as changing the RAID level by reconfiguring the disk array, the attributes are incapable of indicating ownership. Indeed, Jaskiewicz provides no disclosure of how one could manipulate the "attributes" in a way to indicate ownership of a disk by a particular network device. In sharp contrast, the Applicant teaches "*ownership attributes*" that may be set to "*a state of ownership by a network device.*" In this way, ownership information may be set on the disks to indicate which network device owns a particular disk.

Second, the Applicant's claimed invention teaches "*setting a first ownership attribute on the disk*" and "*setting a second ownership attribute on the disk.*" Jaskiewicz, in contrast, discloses storing "attributes" in memory of an *external storage allocator*. The Applicant discusses the disadvantageous of storing ownership information external to the disks in the Background section of the Application, concluding "[t]he need, thus, arises for a technique for a filer to determine which disks it owns other than through a hardware mechanism and zoning contained within a switch." See page 4, lines 28-29. Therefore, rather than require an additional hardware mechanism such as a storage allo-

cator, the Applicant novelly teaches storing ownership attributes on-disk. Jaskiewicz teaches away from such an approach.

Accordingly, the Applicant respectfully urge that Jaskiewicz is legally insufficient to anticipate the presently claimed invention under 35 U.S.C. §102(e) because of the absence of the Applicant's claimed novel "*setting a first ownership attribute on the disk to a state of ownership by the network device*" and "*setting a second ownership attribute on the disk to a state of ownership by the network device.*"

At paragraph 3 of the Office Action, claim 20 was rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application No. 2003/0093501, filed Oct. 18th, 2001 by Carlson et al. (hereinafter "Carlson").

The Applicant notes that Carlson was filed on Oct. 18th, 2001, less than one year before the Applicant's date of filing. While the Applicant does not admit that Carlson is entitled to actual prior art status relative to the Applicant's invention, even assuming arguendo that it is, the claimed invention is patentable over Carlson.

The present invention, as set forth in representative claim 20 comprises in part:

20. A network storage system comprising:
- one or more switches interconnected to form a switching fabric;
 - a plurality of disks, each of the disks connected to at least one of the switches, *each disk storing a first ownership attribute and a second ownership attribute*; and
 - one or more network devices, interconnected with the switching fabric, *each of the network devices being adapted to own a predeter-*

mined set of disks of the plurality of disks through use of the first and second ownership attributes.

Carlson discloses a switching fabric for interconnecting a plurality of hosts to a plurality of storage devices. *See* paragraph 0039. Through configuration of switches in the fabric, storage devices can be assigned to particular hosts. *See* paragraph 0041.

The Applicant respectfully urges that Carlson is silent concerning the Applicant's claimed invention relating to "***each disk storing a first ownership attribute and a second ownership attribute***" and "***each of the network devices being adapted to own a predetermined set of disks of the plurality of disks through use of the first and second ownership attributes.***"

While the Applicant's claimed novel invention teaches setting disk ownership with ***first and second ownership attributes***, Carlson, in sharp contrast, discloses switches for setting ownership. The shortcomings a switch based approach are discussed by the Applicant in the Background section of the Application. At page 4, lines 13-27 the Applicant states:

One prior implementation of a storage system involves the use of switch zoning. Instead of the filer being directly connected to the fibre channel loop, the filer would be connected to a fibre channel switch, which would then be connected to a plurality of fibre channel loops. Switch zoning is accomplished within the fibre channel switches by manually associating ports of the switch. This association with, and among, the ports would allow a filer connected to a port associated with a port connected to a fibre channel loop containing disks to "see" the disks within that loop. That is, the disks are visible to that port. However, a disadvantage of the switch zoning methodology was that a filer could only see what was within its zone. A zone is defined as all devices that are connected to ports associated with the port to which the filer was connected. Another noted disadvantage of this switch zoning method is that if

zoning needs to be modified, an interruption of service occurs as the switches must be taken off-line to modify zoning. Any device attached to one particular zone can only be owned by another device within that zone. It is possible to have multiple filers within a single zone; however, ownership issues then arise as to the disks within that zone.

Accordingly, the Applicant respectfully urge that Calson is legally insufficient to anticipate the presently claimed invention under 35 U.S.C. § 102(e) because of the absence of the Applicant's claimed novel "*each disk storing a first ownership attribute and a second ownership attribute*" and "*each of the network devices being adapted to own a predetermined set of disks of the plurality of disks through use of the first and second ownership attributes.*"

Rejections under 35 U.S.C. §103(a)

At paragraphs 4-5 of the Office Action, claims 2, 6-8, and 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Jaskiewicz in view of U.S. Patent Application No. 2004/0230698, filed June 16th, 2004 by Oeda et al. (hereinafter "Oeda").

The present invention, as set forth in representative claim 6 comprises in part:

6. A method of claiming ownership of a disk by a network device in a network storage system comprising the steps of:
writing ownership information to a predetermined area of the disk; and
setting a small computer system interface level 3 persistent reservation tag to a state of network device ownership.

Oeda discloses a system for assigning multiple SCSI ID's to a single peripheral device so that the device appears to a host computer as multiple devices. See paragraphs

0016 and 0017. Such a system facilitates easier use of the peripheral device by a plurality of hosts that operated with different communications protocols. *See* paragraph 0011. In one embodiment, a disk drive may be assigned multiple SCSI ID's by writing the ID's into registers (Fig. 2, box 71) of a SCSI controller. *See* paragraph 0034. When a host computer accesses the SCSI controller, it may interact with the disk drive using any one of the multiple SCSI ID's. *See* paragraph 0034.

The Applicant respectfully urges that both Jaskiewicz and Oeda are silent concerning the Applicant's claimed invention relating to "*writing ownership information to a predetermined area of the disk*" and "*setting a small computer system interface level 3 persistent reservation tag to a state of network device ownership.*"

Applicant's claimed invention is not made obvious by the combination of Jaskiewicz and Oeda for two primary reasons.

First, neither reference suggests "*writing ownership information to a predetermined area of the disk.*" As discussed above, Jaskiewicz, in sharp contrast, discloses storing "attributes" in memory of an *external storage allocator*. Such "attributes" do not include ownership information and are not stored on the disk. Similarly, Oeda discloses writing SCSI ID's to registers of a SCSI controller. Again, the SCSI ID's do not include any ownership information and are not written to the disk. Thus the combination of Jaskiewicz and Oeda lacks any disclosure of this aspect of the Applicant's invention.

Second, both references are completely silent concerning "*setting a small computer system interface level 3 persistent reservation tag to a state of network device ownership.*" The Examiner admits that Jaskiewicz fails to teach such a feature, and in-

stead cites to Oeda. Yet careful review of Oeda reveals there is no mention of level 3 persistent reservation tags or any similar structure. The Applicant is unsure which aspect of Oeda the Examiner believes shows persistent reservation tags.

To better understand the term, the Applicant respectfully directs the examiner to page 8, lines 4-14 of the specification where the Applicant describes SCSI 3 persistent reservation tags, stating:

The second attribute is Small Computer System Interface (SCSI) level 3 persistent reservations. These SCSI-3 reservations are described in *SCSI Primary Commands – 3*, by Committee T10 of the National Committee for Information Technology Standards, which is incorporated fully herein by reference.

Referring to sections 5.3, 7.12, and 7.13 of Committee T10 of the National Committee for Information Technology Standards, lengthy description of persistent reservations may be found. Such description is far different from any disclosure in Oeda.

Accordingly, the Applicant respectfully urge that Jaskiewicz and Oeda, either alone or in combination, are legally insufficient to make obvious the presently claimed invention under 35 U.S.C. § 103(a) because of the absence of the Applicant's claimed novel "*writing ownership information to a predetermined area of the disk*" and "*setting a small computer system interface level 3 persistent reservation tag to a state of network device ownership.*"

At paragraph 6 of the Office Action, claims 9-10 and 17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Jaskiewicz in view of Carlson.

The present invention, as set forth in representative claim 9 comprises in part:

9. A network storage system comprising:
 a plurality of network devices;
 one or more switches, each network device connected to at least one of the one or more switch; and
 a plurality of disks having a first ownership attribute and a second ownership attribute, each disk connected to at least one of the plurality of switches.

The Applicant respectfully urges that both Jaskiewicz and Carlson are silent concerning the Applicant's claimed invention relating to "***a plurality of disks having a first ownership attribute and a second ownership attribute.***"

As discussed above, Jaskiewicz, in sharp contrast, discloses storing "attributes" that are merely disk characteristics and are insufficient to indicate disk ownership. These "attributes" are not stored on a disk, but rather in an ***external storage allocator***. Carlson also has no disclosure of ownership attributes, but rather discloses a switched based scheme for disk ownership similar to the disclosure in the Background section of the Application.

Accordingly, the Applicant respectfully urge that Jaskiewicz and Carlson, either alone or in combination, are legally insufficient to make obvious the presently claimed invention under 35 U.S.C. §103(a) because of the absence of the Applicants' claimed novel "***a plurality of disks having a first ownership attribute and a second ownership attribute.***"

At paragraph 7 of the Office Action, claims 11-16 and 18-19 were rejected under 35 U.S.C. §103(a) as being unpatentable over Jaskiewicz in view of Carlson in further view of Oeda.

At paragraph 8 of the Office Action, claims 21-23 and 25-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over Carlson in view of Jaskiewicz.

At paragraph 9 of the Office Action, claim 24 was rejected under 35 U.S.C. §103(a) as being unpatentable over Carlson in view of Jaskiewicz in further view of Oeda.

The Applicant respectfully urges that claims 11-16, 18-19, 21-23, and 24-26 are dependent from independent claims believed to be in condition for allowance, and are therefore also believed to be in condition for allowance.

In the event that the Examiner deems personal contact desirable in the disposition of this case, the Examiner is encouraged to call the undersigned attorney at (617) 951-3078.

All independent claims are believed to be in condition for allowance.

All dependent claims are believed to be dependent from allowable independent claims.

The Applicant respectfully solicits favorable action.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read "James A. Blanchette", written over a horizontal line.

James A. Blanchette

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